REMARKS

The Examiner has rejected claims 1 and 7-8 under 35 U.S.C. 102 as anticipated by Chavarria-Miranda, "An Evaluation of Data-Parallel Compiler Support for Line-Sweep Applications," hereinafter Chavarria-Miranda. The Examiner has rejected claims 2-6 under 35 U.S.C. 103(a) over Chavarria-Miranda further in view of the "Cray T3E Fortran Optimization Guide" (hereinafter Cray).

The New Claims

New Claim 11 has limitations corresponding roughly to those of claim 5, with an added limitation relating to block sizes that are a multiple of a power of two. Support for this limitation is found at paragraph 44 of the application.

Claims 12 and 13 depend on claim 11.

Claim 11

Applicant appreciates that Chavarria-Miranda describes a dynamic memory management system wherein spacer blocks are allocated between arrays. In rejecting Claim 5, the Examiner cited Cray for the element of randomly determining spacer sizes.

Applicant notes that Cray 4.3.3 describes allocating padding within a range of spacer sizes (up to 264 words) where the padding size is specifically determined dependent on the size of the array. As an example of the allocation performed by Cray, see example 4.2 where a number of arrays are allocated, all 1024-word size, all padded by 72.

Cray therefore actually does not disclose, and indeed teaches away from, the claimed allocating spacer blocks (padding) determined randomly within a range.

Applicant notes that random sizing of spacer blocks may be simpler to implement than a method based on block size.

In addition, Claim 11 proposes foregoing the spacer blocs when odd-sized arrays are allocated. Odd-sized arrays (those having size not representable as an integer multiple of a selected power of two cache lines) tend not to cause cache congestion. It is anticipated that M will be chosen such that 2 to the power M corresponds to a large fraction of the number of cache tag lines in a cache. When this

is done, small arrays are left unpadded, but arrays likely to cause congestion are padded. By leaving small and odd-sized arrays unpadded, memory is conserved.

The decision to pad arrays in Chavarria-Miranda is apparently made by hand. In Cray, arrays of under 256 are not padded, those between 256 and 1K are padded with a fixed 8 words, and those over 1K are padded with an array-size-dependent pad. Cray's text does not disclose detection of odd-sized arrays.

Conclusion

The Examiner is respectfully requested to enter the foregoing amendments and to reconsider the amended application in view of the foregoing remarks.

It is believed that no fees are due in connection with this amendment. If any additional fee is due, please charge Deposit Account No. 08-2025.

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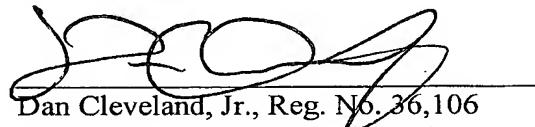
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